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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LAIR, DONALD M

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 09/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/055,754

Applicant(s)

BLADES, FREDERICK K.

Examiner

Donald M. Lair

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 11-17 and 22-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 18-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 and 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of the Restriction Requirement in Paper No. 6 is acknowledged. The traversal is on the ground(s) that the feature of "a probe adapted to sense voltage by a capacitive coupling to a wire in which a fault may need to be location" forms the basis for a common search and commonality of invention to each of the independent claims.

2. This is not found persuasive because, according the MPEP §802.01 a restriction requirement is proper if:

35 U.S.C. 121 quoted in the preceding section states that the Commissioner may require restriction if two or more "independent and distinct" inventions are claimed in one application. In 37 CFR 1.141, the statement is made that two or more "independent and distinct inventions" may not be claimed in one application.

The term "distinct" means that two or more subjects as disclosed are related, for example, as combination and part (subcombination) thereof, process and apparatus for its practice, process and product made, etc., but are capable of separate manufacture, use, or sale as claimed, AND ARE PATENTABLE (novel and unobvious) OVER EACH OTHER (though they may each be unpatentable because of the prior art). It will be noted that in this definition the term related is used as an alternative for dependent in referring to subjects other than independent subjects.

3. The independent Claims 11, 22, and 29, clearly contain elements and claim language that that is not required by the particulars of independent claims 1 and 18. Further, Claims 1 and 18 do not render Claims 11, 22, and 29 obvious, thus meeting the requirements for restriction as put forth by the MPEP.

4. The requirement is still deemed proper and is therefore made FINAL.

5. Claims 11 – 17 and 22 – 34 are withdrawn from consideration.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. In regards to Claims 4 and 5, the specification fails to describe, or even mention, a "compensator" and it is not clear from the disclosure what exactly the applicant is claiming because the "compensator" is not adequately defined.

Claim Objections

9. Claim 5 recites the limitation "the second compensator" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 8 recites the limitation "the amplifier" in line 1. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 21 recites the limitation "the airframe" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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13. Claims 1 – 3, 6 – 9, and 18 – 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Achatz (US-6,130,540).

14. In regards to Claim 1, Achatz discloses a device for locating a series arc fault at one or more series connections having a first end and a second end, the first end of the connections being couples to a source of common-mode voltage and the second end of the connections being coupled to a wire, the wire having a conductive layer and an insulation layer for sheathing the conductive layer (Column 4, lines 8 – 17; Figure), the device comprising:

an electrode electrically coupled to the source of common-mode voltage at a first node, thereby providing a reference based on the common-mode voltage (Column 1, line 59 – Column 2, line 1);

a probe adapted for clamping to the wire at a second node, thereby forming a coupling capacitance to electrically couple the probe to the wire (Column 3, lines 9 – 17); and

a measuring circuit being coupled to the probe and being coupled to the electrode so as to measure an AC voltage between the first node and the second node to detect and locate the series arc fault (Column 1, line 59 – Column 2, line 1).

15. In regards to Claim 2, Achatz discloses a device comprising the elements described above, wherein the probe includes a first conductive layer and wherein the coupling capacitance electrically couples the first conductive layer of the probe to the conductive layer of the wire (Column 4, lines 3 – 17).

16. In regards to Claim 3, Achatz discloses a device comprising the elements described above, wherein the probe includes a second conductive layer and a first insulation layer, the first insulation of the probe being interposed between the second conductive layer of the probe and

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the first conductive layer of the probe, the second conductive layer being defined as a probe shield for shielding the first conductive layer of the probe from parasitic capacitance. (Column 4, lines 3 – 17).

17. In regards to Claim 6, Achatz discloses a device comprising the elements described above, wherein the device includes a circuit means to measure the high-frequency noise produced by the series arc fault (Column 1, lines 29 – 31, 35 – 41, 48 – 50; Column 2, lines 7 – 14 and 28 – 32).

18. In regards to Claim 7, Achatz discloses a device comprising the elements described above, wherein the probe is encased in a nonconductive material to protect a user from electric shocks (Column 4, lines 3 – 17).

19. In regards to Claims 8 and 9, Achatz discloses a device comprising the elements described above, wherein the measuring circuit includes an amplifier having a high impedance to inhibit the measured AV voltage from changing significantly when the coupling capacitance changes (Column 4, lines 21 – 29; Figure, element 13).

20. In regards to Claim 18, Achatz discloses a device for locating a series arc fault at one or more series connections having a first end and a second end, the second end of the connections being coupled to a wire, the wire having a conductive layer and an outer insulation layer for sheathing the conductive layer, the device comprising:

a capacitive probe for clamping to the outer insulation layer of the wire to sense a voltage at the second end of the connections (Column 3, lines 9 – 17); and

a floating high-impedance meter having a ground reference electrically coupled to the first end of the connections (Column 4, lines 21 – 29; Figure, element 13), wherein operational

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amplifiers such as element 13 inherently have high-impedance inputs, the floating high-impedance meter being adapted to measure a voltage sensed by the capacitive probe and being further adapted to indicate the presence of the series arc fault when the measured voltage exceeds a predetermined level (Column 4, lines 1 – 14, 18 – 20, 41 – 44, and 60 – 65).

21. In regards to Claim 19, Achatz discloses a device comprising the elements described above, further comprising a display being coupled to the floating high-impedance meter (Figure, element 16).

22. In regards to Claim 20, Achatz discloses a device comprising the elements described above, wherein the first end of the connections is connected to a power source (Column 4, lines 8 – 17; Figure).

Claim Rejections - 35 USC § 103

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

24. Claims 10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Achatz.

25. In regards to Claim 10, Achatz discloses a device according to the description above, but fails to disclose a specific range of preferred values for the coupling capacitance. However, Achatz does disclose that the capacitor is advantageously tuned in accordance with a preferred filter arrangement (Column 3, lines 18 – 38). Clearly, it would have been well within the ability for a person of ordinary skill in the art at the time of the invention to select a coupling capacitance between 1 picofarad and 10 picofarads to advantageously tune the capacitive and

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inductive elements that form the filter to each other. "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

26. In regards to Claim 21, Achatz discloses a device according to the description above, but fails to disclose connecting the device to an airframe. However, the use of arc detectors to identify failed wiring integrity in aircraft is very well known in the art. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention disclosed by Achatz by using it to test arc for arcing faults in an aircraft for the purpose of identifying faulty wiring before it results in critical failures (MPEP §2144.03).

Remarks

27. Since the "compensator" claimed in Claims 4 and 5 has not been sufficiently described for the purposes of examination, they have not been treated to a rejection based on prior art.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald M. Lair whose telephone number is (703) 305-4450. The examiner can normally be reached on Monday - Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (703) 308-0750. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1436.



Donald M. Lair
Patent Examiner
Art Unit 2858
September 22, 2003



N. Le
Supervisory Patent Examiner
Technology Center 2800